

PATENT ABSTRACTS OF JAPAN

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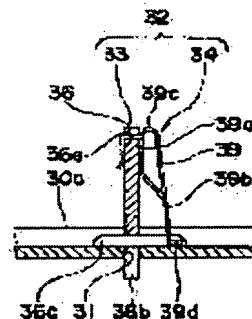
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(54) SHEET STORAGE CONTAINER

(57)Abstract:

PURPOSE: To prevent occurrence of inferior feed, skew and jam by making the position at which a sheet are pressed against a paper feed roller, uniform, and to provide a cheap sheet storage container which may cope with various sizes of sheets.

CONSTITUTION: A guide member 32 in a sheet storage container is composed of a support part 33 formed of a resin plate 36 and a resilient part 34 formed of a leaf spring 39. The body 39a of the leaf spring 39 is attached slantwise so that it goes away from the resin plate 36, gradually from the upper end to the lower end thereof. Further, the rear ends of loaded sheets are pressed against the body 39a of the leaf spring so that the leaf spring 39 flexes. The flexion of the leaf spring 39 decreases as the number of the loaded sheets decreases so that the sheets is pushed out, thereby the leading end of the uppermost sheet is pressed against a sheet feed roller at one and the same position.



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CLAIMS

[Claim(s)]

[Claim 1] In the sheet stowage container which presses the top sheet against a feed roller and sends it out one by one from the top sheet while loading and containing a sheet on a bottom plate, applying and arranging the back end with a guide member and going up said bottom plate The sheet stowage container which comes to prepare for said guide member the elastic section which extrudes a sheet until bend with the weight of said loading sheet, it bends as the number of sheets of the loading sheet decreases, and it decreases an amount and it presses against said feed roller the location where the tip of the top sheet is the same.

[Claim 2] The sheet stowage container according to claim 1 which makes said elastic section from one flat spring, and comes to form said guide member by supporter material in support of it.

[Claim 3] The sheet stowage container according to claim 2 which comes to arrange an elastic member between the upper limit of said flat spring, and said supporter material.

[Claim 4] The sheet stowage container according to claim 1 which makes said elastic section from two or more flat spring, and comes to form said guide member by supporter material in support of them.

[Claim 5] The sheet stowage container according to claim 1 which really comes to form said guide member by molding with said elastic section and the supporter which supports it.

[Claim 6] The sheet stowage container according to claim 1 which comes to extend the lower limit of said elastic section from the sheet installation side of said loading sheet to a lower part.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Industrial Application] This invention relates to the sheet stowage container used for example, for a laser beam printer, a copying machine, facsimile, etc.

[0002]

[Description of the Prior Art] Conventionally, this seed sheet stowage container 1 was equipped with the guide member 3 which pushes up that before side and arranges the possible bottom plate 2 and the sheet back end as shown in drawing 14 . And as shown in drawing 13 , the back end of the sheet S loaded on the bottom plate 2 is pressed and arranged with the guide member 3, for example, the body of a laser beam printer is equipped, the body of a printer pushes up, a bottom plate 2 is pushed up with a lever 4, the tip of the top sheet S is pressed against the feed roller 5 of the body of a printer, and it sends out one by one from the top sheet S. However, as shown in drawing 12 , when the number of sheets of the loading sheet S decreased, the bottom plate 2 pushed up and the amount increased, the tip of the top sheet S shifted, the same location stops having hit the feed roller 5, and there was a trouble that non-delivery and a skew jam were generated.

[0003] Therefore, as shown in drawing 11 , the rockable regulation plate 6 was formed in forward and backward before the guide member 3, and there was a sheet stowage container 9 which connected the lower limit with the bottom plate 2 with the wire 8 through the guide koro 7. and Sheet S was loaded on the bottom plate 2, and it attached in the body of a printer, and it was alike, and carried out and each other and a wire 7 pulled the lower limit of the regulation plate 6 to the before side, and as shown in drawing 10 , there was a thing whose bottom plate 2 send out the top sheet S one by one with the feed roller 5, and goes up and which extrudes with the back end near at hand of Sheet S, and prevented the location gap of the tip of Sheet S. (Refer to publication number -271329 [No.]) .

[0004]

[Problem(s) to be Solved by the Invention] However, since the size of the sheet to load was limited while component parts, such as the regulation plate 6, the guide koro 7, and a wire 8, increase in number and becoming cost quantity, this sheet stowage container 9 had to prepare the sheet stowage container 9 for each sizes, and had the trouble of being uneconomical.

[0005] Then, the purpose of this invention is to enable it to prevent generating of non-delivery and the feed mistake skew jam by the location equivalent to the roller of a feed of the sheet of (1) most significant shifting, to make (2) sheet stowage container into low cost, and to correspond to each size of a sheet with a (3) 1 ** sheet stowage container.

[0006]

[Means for Solving the Problem] therefore, a thing according to claim 1 like the following illustration examples Load and contain Sheet S on a bottom plate 37, and the back end is applied and arranged with the guide member 32. In the sheet stowage container 17 which presses the top sheet S against the feed roller 18, and sends it out one by one from the top sheet S while going up said bottom plate 37 It is characterized by the thing it comes to equip said guide member 32 with the elastic section 34 which extrudes Sheet S until bend with the weight of said loading sheet S, it bends as the number of sheets of the loading sheet S decreases, and it decreases an amount and it presses against said feed roller 18 the location where the tip of the top sheet S is the same.

[0007] Like the example shown in the following drawing 1 thru/or drawing 5 , in the sheet stowage container 17 according to claim 1, a thing according to claim 2 makes said elastic section 34 from one flat spring 39, and is characterized by the thing it comes to form said guide member 32 by supporter material like the resin plate 36 in support of it.

[0008] A thing according to claim 3 is characterized by the thing it comes to arrange an elastic member 40 between upper limit 39c of said flat spring 39, and said supporter material in the sheet stowage container 17 according to claim 2 like the example shown in the following drawing 5 .

[0009] Like ***** shown in the following drawing 6 , in the sheet stowage container 17 according to claim 1, a thing according to claim 4 makes said elastic section 34 from two or more flat spring 39, and is characterized by the thing it comes to form said guide member 32 by supporter material in support of them.

[0010] A thing according to claim 5 is characterized by what it really comes to form said guide member 32 by molding with said elastic section 34 and the supporter 33 which supports it for in the sheet stowage container 17 according to claim 1 like the example shown in the following drawing 7 .

[0011] Moreover, a thing according to claim 6 is characterized by the thing it comes to extend the lower limit of said elastic section 34 from the sheet installation side of said loading sheet S to a lower part in the sheet stowage container 17 according to claim 1 like the following illustration examples.

[0012]

[Function] And even if the number of sheets of the sheet S contained in the sheet stowage container 17 decreases, Sheet S is extruded in the elastic section 34, and the location where the tip of the top sheet S is the same is pressed against the feed roller 18.

[0013] At a thing according to claim 3, bending of flat spring 39 is adjusted by the elastic member 40.

[0014]

[Example] Hereafter, the example of this invention is explained, referring to a drawing. Drawing 9 is the whole laser beam printer outline block diagram equipped with the sheet stowage container by this invention. The sign 10 in drawing shows the body of a printer. In the body 10 of a printer, the belt-like photo conductor 11 is mostly formed in the center. Around the photo conductor 11, the electrification machine 12, a development counter 13, the imprint machine 14, the cleaning machine 15, etc. are arranged in order to the driving direction shown by the arrow head. And the vessel 16 write-in [optical] is formed above a photo conductor 11, and it equips with the sheet stowage container 17 near the pars basilaris ossis occipitalis of the body 10 of a printer free [attachment and detachment].

[0015] and the sheet S sent out in the direction of arrow-head A with the feed roller 18 from the sheet stowage container 17 -- a *****-** pair -- by 19, timing is taken and it conveys to a photo conductor 11. A photo conductor 11 carries out a rotation drive clockwise, in that case, with the electrification charger 12, it is uniformly charged in a front face, irradiates the laser beam from the vessel 16 write-in [optical], and forms an electrostatic latent image on a photo conductor 11. This latent image is formed into a visible image with a toner, when it passes along a development counter 13, this visible image is imprinted with the imprint charger 14 on the sheet S conveyed to the photo conductor 11, and the visible image on the imprinted sheet S is established by the fixing assembly 20. and the sheet S which came out of the fixing assembly 20 -- a conveyance roller pair -- it conveys by 21.

[0016] It is discharged in the direction of arrow-head B according to the direction switch by the change-over pawl 22, turning an image side up, or the sheet S which passed conveyance roller pair 21 is conveyed by delivery roller pair 24 in the direction of arrow-head C as a connoisseur in the sheet conveyance way 23, turns an image side down to the delivery unit 25 on the body 10 of a printer, and is discharged. On the other hand, the photo conductor 11 after an imprint is removed by the cleaning machine 15 in a residual toner.

[0017] By the way, the sheet stowage container 17 by this invention is constituted as shown in drawing 8 . It is the body of a stowage container which is shown with a sign 30. This body 30 of a stowage container is box-like [in which the upper part carries out opening], the left in drawing is a

posterior part and the method of the right is anterior part. A concave step low one step is prepared in a posterior part side central twist at inner base 30a of the body 30 of a stowage container, and the engagement hole 31 of a Uichi Hidari pair for guide member installation is arranged in the concave step at the cross direction of two or more pairs and the body 30 of a stowage container. Moreover, although not illustrated to the both-sides twist by the side of anterior part, the attaching hole of a Uichi Hidari pair is arranged two or more pairs according to sheet size. And the guide member 32 of an abbreviation rectangle consists of a supporter 33 and the elastic section 34. The guide member 32 is attached in the engagement hole 31 of the location corresponding to the size of the sheet to contain free [engaging and releasing / side guide / 35] in the attaching hole of the location corresponding to said size again. Furthermore, the bottom plate 37 which covers the anterior part side on inner base 30a is attached in right-and-left side-attachment-wall 30b of the body 30 of a stowage container free [vertical rotation] by the pin 38.

[0018] As specifically shown in drawing 1 and drawing 2, the guide member 32 is the resin plate 36 about a supporter 33, and forms the elastic section 34 by flat spring 39, respectively. The resin plate 36 is an abbreviation rectangle, it has spigot leg 36b which prepared slot 36a deeply cut from the lower limit in the both-sides section, and the outside lower limit serves as 36d of radii-like hanging sections. The lower limit of the resin plate 36 inside the spigot leg 36b is spigot leg 36b and support-saddle section 36c of the rectangular direction. Moreover, the center of upper limit is deeply cut from an upper limb, and has become attachment section 36e which attaches flat spring 39. On the other hand, flat spring 39 is an abbreviation rectangle smaller than the resin plate 36, is bent by slitting put into the center section from upper limit, and is formed, and it has attachment section 39a which it is made to incline in the vertical direction and supports flat spring body 39b. Both-sides upper limit 39c of this attachment section 39a is small bent in the shape of radii. Moreover, 39d of lower limits of flat spring body 39b is bent at the abbreviation right angle in upper limit 39c and the opposite side.

[0019] And insert attachment section 39a of said flat spring 39 in attachment section 36e of the resin plate 36, make both-sides upper limit 39c of flat spring 39 contact the field of the resin plate 36 elastically, it is made to incline so that flat spring body 39b may be turned to 39d of lower limits from upper limit 39c and it may separate from the resin plate 36 gradually, flat spring 39 is attached in the resin plate 36, and the guide member 32 is constituted. As flat spring 39 becomes a before side about this guide member 32, spigot leg 36b is inserted in the engagement hole 31, support-saddle section 36c is pressed against inner base 30a of the body 30 of a stowage container, and it attaches in the body 30 of a stowage container. And the stop of the 36d of the hanging sections of spigot leg 36b is hung and carried out to the edges on both sides of the engagement hole 31, 39d of lower limits of flat spring 39 is projected to a lower part from inner base 30a which is a sheet installation side, and the guide member 32 is attached in the sheet stowage container 17.

[0020] And Sheet S is loaded on the bottom plate 37 of this sheet stowage container 17, and the back end of Sheet S is applied to the flat spring 39 of the guide member 32, it presses against the front end of the body 30 of a stowage container, the front end of Sheet S is arranged, and it attaches in the body 10 of a printer. Then, a bottom plate 38 goes up by the pressurization arm which was prepared in the body 10 of a printer and which is not illustrated, and the top sheet S is pressed against the feed roller 18. Since the weight of Sheet S is size as the loading sheet S shows drawing 3, when many, the back end of the sheet S from the bending most significant to the least significant will be [flat spring 39] in the condition of being equal to the abbreviation upper and lower sides, greatly so that may be forced on the resin plate 36. As the number of sheets of the loading sheet S will decrease, and shown in drawing 4, the amount of bending of flat spring 39 decreases, and Sheet S is extruded [if it sends out one by one from the top sheet S,]. And the location where the tip of the top sheet S is always the same is pressed against the feed roller 18.

[0021] Although the guide member 32 of said example pressed upper limit 39c of flat spring 39 against the direct resin plate 36, it may enable it to attach the elastic members 40, such as rubber sponge, synthetic resin, a compression coil spring, and flat spring, between upper limit 39c of flat spring 39, and the resin plate 36, as shown in drawing 5. And when weight changed with classes of sheet, it should be suitable for the sheet in the elastic member 40.

[0022] Moreover, although each made the elastic section 34 of said example from the flat spring 39 of one sheet, it forms the spring 39 with wide width of face in the center in the vertical direction,

forms the flat spring 39 with different narrow width of face from the repulsive force of the flat spring 39 above the both sides, changes the repulsive force gradually according to the burden of Sheet S, and you may make it catch the back end of Sheet S, as shown, for example in drawing 6.

[0023] Although the guide member 32 of each of said example used a supporter 33 and the elastic section 34 as another object, as shown in drawing 7, it may really be formed by molding with the same ingredient.

[0024]

[Effect of the Invention] Therefore, since according to this invention a sheet is extruded in the elastic section and the location where the top sheet tip is the same is pressed against a feed roller even if the number of sheets of the sheet contained in the sheet stowage container decreases Since the elastic section is only prepared in the guide member which can prevent generating of non-delivery and a skew jam, and hits against the sheet back end While making a sheet stowage container into low cost, it can respond to each size of a sheet with one sheet stowage container by enabling it to change the attaching position of a guide member.

[0025] According to the thing according to claim 3, the repulsive force of flat spring can be changed by exchanging elastic members.

[0026] According to the thing according to claim 5, since the activity with a group of the guide member itself is unnecessary, a sheet stowage container can be further made into low cost.

[0027] Moreover, according to the thing according to claim 6, since there is a lower limit of the elastic section caudad from a sheet installation side, when laying a sheet, a sheet can prevent diving into the bottom of the elastic section.

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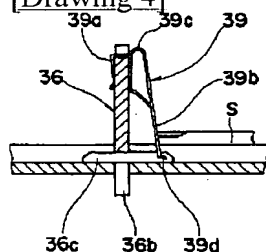
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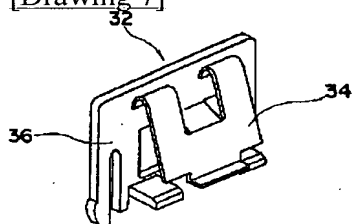
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DRAWINGS

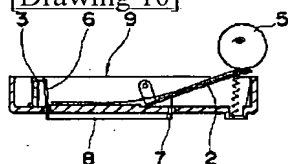
[Drawing 4]



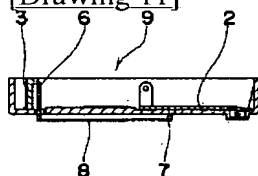
[Drawing 7]



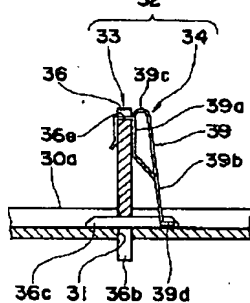
[Drawing 10]



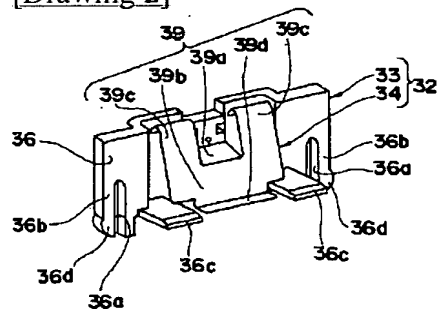
[Drawing 11]



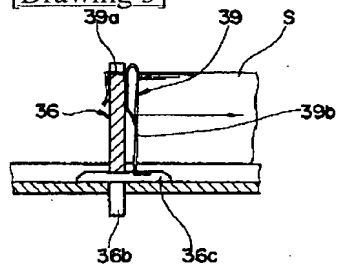
[Drawing 1]
32



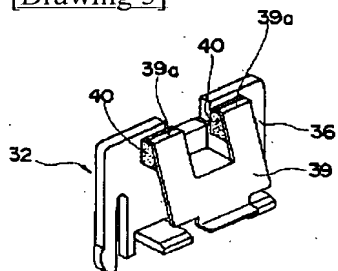
[Drawing 2]



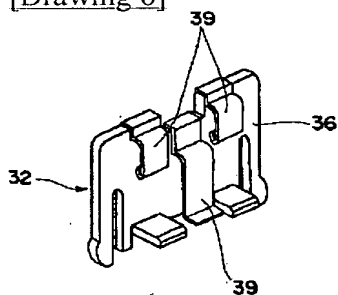
[Drawing 3]



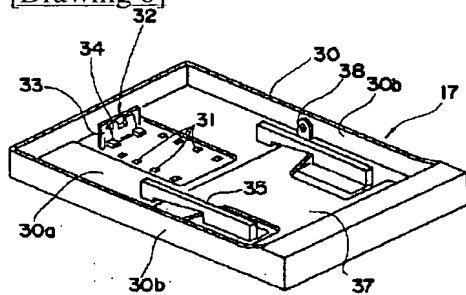
[Drawing 5]



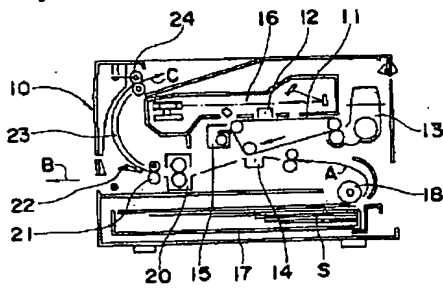
[Drawing 6]



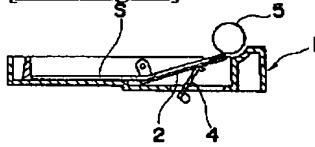
[Drawing 8]



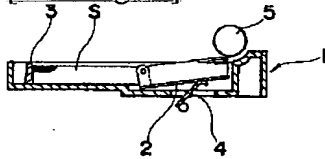
[Drawing 9]



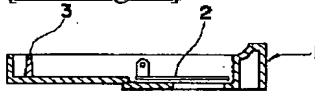
[Drawing 12]



[Drawing 13]



[Drawing 14]



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